

ABSTRACT OF THE DISCLOSURE

A method of operating a laser drilling system to manufacture gravure printing plates without etching or the use of hazardous chemicals includes activating a laser drilling system, including a picosecond laser, light valves, and a mechanism adapted to rotate a gravure cylinder blank. Operation of the light valves, includes setting the light valves to block and/or allow pulses of laser energy propagating from the laser drilling system that can ablate a linear pattern of cells along a substantially entire length of the gravure cylinder blank. Drilling of cells includes targeting the laser drilling system on the gravure cylinder blank, such that ablation of materials occurs as sub-beams propagate along an optical path to the target area and impinge upon the gravure cylinder blank, wherein specific cells within the target area of the gravure cylinder blank are drilled or not drilled according to settings of the light valves.